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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/172,298 10/14/98 RHODES

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EXAMINER

MMC2/0129

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ART UNIT

PAPER NUMBER

2811

DATE MAILED:

01/29/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

172,298

Applicant(s)

H. RHODES

Examiner

G. MUNSON

Group Art Unit

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—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 3 JANUARY 2001.
- ☒ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-149 is/are pending in the application.
Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-149 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____.

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

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Claims 66 and 135-149 are rejected under 35 U.S.C. 112, first paragraph. The "processor" (claim 53) for particular use in a "camera" is unclear from the specification (page 19). See 37 CFR 1.83(a). Claims 135-149 are contrary to Figure 10. Note that Figures 5-9 show stages during a process of manufacture and do not show a resultant structure of an "imaging device" or "active pixel sensor" as claimed.

Claims 140-144 and ¹⁴⁶⁻149 are rejected under 35 U.S.C. 112, second paragraph, these claims contradict claims 135-139. Claims 146-149 are identical to claims 141-144.

The process terminology (claims 31, 32, 38, 41, 42, 51, etc.) is considered only in terms of a necessary *resultant structure* from the process. The process itself is *not* at issue. The device claims are not limited to the recited process. See MPEP 2113; *In re Brown*, 173 USPQ 685 (CCPA 1972); *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980); *In re Marosi*, 218 USPQ 289, 292, 293 (CCPA 1983); *In re Thorpe*, 227 USPQ 964 (CAFC 1985).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7, 12, 14, 15, 18, 19, 25, 26, 28, 29, 31-33, 38, 39, 41-44, 46, 51, 53-55, 57-59, 66 and 115-119 are rejected under 35 U.S.C. 103 as unpatentable over the acknowledged prior art in this application (Figures 1,2, pages 1-12) and Nagasaki et al, considered together. For an imaging device as in the acknowledged prior art (Figures 1,2), it would have been obvious to use a photogate

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insulator with higher dielectric constant, as suggested by Nagasaki et al (Figure 17; columns 2-3), in order to increase the capacity of the photogate. From Nagasaki et al, it would have been obvious that the materials used in this invention, e.g., silicon nitride as in claim 12, would achieve a higher capacity of the photogate than use of silicon oxide.

Claims 4, 27, 45, 56, 120-144 and 146-149 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1,2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Koike et al. The claimed materials (claims 4, 27, 45, 56) are conventional to use as transparent or semi-transparent materials, as applicant would agree and as shown by Koike et al (column 3), which would have been obvious to use to achieve a transparent or semi-transparent photogate electrode. Moreover, it would have been obvious to have the photogate insulator extend over an adjacent "gate stack" (claims 120-124) as the photogate insulator does over "gate stack" 18 of Koike et al (Figure 2), in order to achieve a photogate insulator and adjacent gate as in the acknowledged prior art in this application (Figure 1).

Claims 8, 10, 11, 20, 22, 23, 34, 36, 37, 47, 49, 50, 60, 62 and 63 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1,2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Suzuki. The claimed materials (NO or ON), used by Suzuki (column 4), are well known to have a higher dielectric constant than silicon oxide, as applicant agrees (37 CFR 1.56, MPEP 2144.03),

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which would have been obvious to use for a photogate insulator in order to achieve a higher capacity for the photogate.

Claims 8, 9, 13, 20, 21, 34, 35, 47, 48, 52, 60, 61 and 65 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1,2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Okada et al. The claimed material (ONO), used by Okada et al, is well known to have a higher dielectric constant than silicon oxide, as applicant agrees (37 CFR 1.56, MPEP 2144.03) which would have been obvious to use for a photogate insulator in order to achieve a higher capacity for the photogate.

The references are of record.

The arguments in the response, filed January 2001, have been considered but are not persuasive, as noted above. Contrary to the response (pages 5-9), silicon nitride has a higher dielectric constant than silicon oxide, and Nagasaki et al (Figure 17) would have suggested use of an "insulating layer" with a higher dielectric constant than silicon oxide. Contrary to the response, that a higher dielectric constant material than NO, ON or ONO would achieve a yet higher capacity of the photogate than in this invention follows the teaching of Nagasaki et al, rather than teaches away from Nagasaki et al. It would have been obvious from Nagasaki et al that this invention achieves lower capacity of the photogate by not using a material with a higher dielectric material than silicon nitride, ON, NO or ONO. From Nagasaki et al, it still would have been obvious that silicon nitride would achieve a higher capacity of the photogate than use of silicon oxide. Contrary to the response (page 9), Koike et al (column 3) do disclose the use of indium oxide (InO_2) and tin oxide (SnO_2).

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Contrary to the response (pages 10-11), neither Suzuki nor Okada et al are applied under 35 U.S.C. 102. You “cannot show non-obviousness by attacking references individually, where, as here the rejections are based on combinations of references.” *In re Keller*, 208 USPQ 871, 882 (CCPA 1981).

Anagnostopoulos et al is cited of interest in showing use of ONO with a photogate in a pixel.

No claim is allowed.

This action is **FINAL**.

This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee of appropriate amount.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

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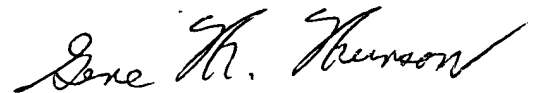
A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing, whichever is longer, of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

G. Munson
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Munson/ch
1-24-01



**GENE M. MUNSON
EXAMINER
GROUP ART UNIT 2811**